UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

GLORY N. NNA, ADMINISTRATRIX OF THE ESTATE OF HILLARY OBIOMA NNA, MICHAEL P. MASON, JORY S. MASON, and PETER W. LEE, Plaintiffs,	)	CIVIL ACTION NO. 06-cv-11950-DPW
v.	)	
AMERICAN STANDARD, INC., Defendant.	)	

MEMORANDUM AND ORDER
May 1, 2009

Plaintiffs Glory N. Nna (Administratrix of the Estate of Hillary Obioma Nna ("Nna")), Michael P. Mason ("Mason"), Jory S. Mason, and Peter W. Lee ("Lee") pursue this diversity action against Defendant American Standard, Inc. ("ASI")[1] for negligence, gross negligence and breach of warranty.[2] The case

[1] The case was initially docketed as *Nna et al. v. WABTEC Corporation F/K/A Westinghouse Air Brake Company and Bombardier Transit Corporation*, 06-cv-11950-DPW, Plaintiffs subsequently added ASI as a party. The two original Defendants have left the case. On June 26, 2007, Plaintiffs assented to the dismissal of Defendant Bombardier Transit Corporation, and on March 31, 2008, I granted summary judgment in favor of Defendant WABTEC Corporation.

[2] As a formal matter, the operative pleading in this case at this time remains the Second Amended Complaint, which alleges causes of action only for negligence and gross negligence. On June 1, 2007, Plaintiffs submitted a proposed Third Amended Complaint, which sought to add causes of action for breach of warranty, including failure to warn, against all three Defendants then in the case. After the original Defendants were dismissed, I found Plaintiffs' existing motion to amend the Second Amended Complaint to be moot, and I indicated that Plaintiffs should file a new proposed amended complaint that accounted for the change in parties. To date, no such filing has been made. However,

centers around a tragic accident on the night of January 27, 2005, when a rapid transit train struck three Massachusetts Bay Transportation Authority ("MBTA") employees - Nna, Mason, and Lee - as they were working to clear ice from a switch. Nna was killed as a result of the collision; Mason and Lee suffered serious physical injuries. According to Plaintiffs, the proximate cause of the accident was the failure of the train's horn to sound properly in the moments before the collision; this failure, they contend, resulted from the accumulation of snow and ice in the horn's bell. Plaintiffs allege that ASI, which designed and manufactured the horn, should have equipped the horn with a protective cover or at least warned the MBTA about the dangers of using it in a cold and snowy environment. ASI has moved for summary judgment on grounds that: (1) the MBTA was a "sophisticated user" of the subject horn, thereby relieving ASI of any liability; (2) the MBTA's "extraordinary negligence" was a supervening cause of the accident; and (3) the Plaintiffs have failed to present sufficient evidence of causation, primarily because the proposed testimony of Plaintiffs' expert witnesses as to causation is inadmissible.[3] For the reasons discussed below,

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Defendant's summary judgment briefs address Plaintiffs' claims as though they include the breach of warranty claims from Plaintiffs' original proposed Third Amended Complaint, and for purposes of this summary judgment motion, I will do likewise. I will, however, direct that Plaintiffs file a conforming Fourth Amended Complaint reflecting the current state of the claims.

[3] ASI has also filed a Motion to Exclude Expert Testimony to advance this contention.

I will deny ASI's summary judgment motion.

I. BACKGROUND[4]

A. The Parties

Plaintiff Glory N. Nna is the administratrix of the estate of her late husband, the MBTA worker killed in the January 27, 2005 accident. Plaintiffs Mason and Lee were the other two MBTA workers involved in the accident. Plaintiff Jory S. Mason is the wife of Plaintiff Mason. All of the Plaintiffs are Massachusetts residents.

Defendant ASI is a non-Massachusetts corporation based in New Jersey. ASI designed and manufactured the horn that failed to sound properly before the train struck the three MBTA workers.

B. Sending the Work Crew to Switch 83

Around 6:40 p.m. on the night of January 27, 2005, MBTA

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[4] In the following factual discussion, I draw all reasonable inferences in favor of Plaintiffs and indicate where there are material factual disputes between the parties. Both parties have relied extensively in their summary judgment briefs on findings, conclusions and statements contained in two reports concerning the accident: the MBTA Safety Department Final Report and the MBTA Police Department Fatality Report. Where appropriate, I have relied on the findings of these reports in developing the factual discussion below. *See Beech Aircraft Corp. v. Rainey*, 488 U.S. 153 (1988); *see also* Fed. R. Evid. 803(8)©. I note, however, that not all of the material contained in these reports is admissible evidence that properly can be considered at summary judgment. *See United Techs. Corp. v. Mazer*, 556 F.3d 1260, 1278 (11th Cir. 2009) ("[P]lacing otherwise inadmissible hearsay statements by third-parties into a government report does not make the statements admissible.") (internal quotation omitted). The evidentiary status of the material in these reports is addressed in further detail in Section II.B, *infra*.

Signal Inspector Joseph Stover telephoned Mary Dacey, the MBTA Dispatcher for the Orange Line, requesting permission for a work crew to enter the right of way to clear snow and ice from Switch 83.[5] Switch 83 is located adjacent to Wellington Station, and it is used to reroute trains in need of service from the main tracks into the Wellington train yard for maintenance. The switch had become inoperable because of the difficult weather conditions. Although it was not snowing that evening, there were approximately eighteen inches of snow on the ground, and it was extremely cold.

Dacey at first denied the request, asking Stover if the crew could wait half an hour. Dacey hoped the extra time would ease the rush hour delays on the Orange Line, caused by a combination of bad weather, signal problems and disabled trains. There was subsequently a miscommunication between Dacey and her supervisor, Deon Stubbs, regarding Stover's request. According to Dacey, Stubbs - the manager of the MBTA Operations and Control Center - overruled her decision and told her she must let the work crew go out to Switch 83. According to Stubbs, he only told Dacey to grant permission for the crew to "throw" the switch by sending an electrical signal from the tower, not for the crew to actually go out on the right of way. In any event, when Stover called Dacey

[5] According to an MBTA "Safe Practices" manual, the "right of way" refers to "[t]he property (fence to fence, wall to wall, and property line to property line) over which [MBTA] vehicles operate, including sidings and yards."

a second time, she granted his request and made an announcement to all motormen and train attendants that a work crew was heading out to Switch 83. Over the next ten minutes, between 6:50 p.m. and 7:00 p.m., Dacey made three additional announcements warning trains to use caution near Switch 83.

The three-man work crew that went out to clean Switch 83 consisted of Nna, a Signal Engineer, and Mason and Lee, both Maintenance Improvement Workers.[6] The MBTA Right of Way Safe Practices manual requires a work crew of two or more persons to designate a flagperson, equipped with a set of flags and an airhorn, whose "main responsibility is to continually watch for oncoming vehicles and notify the crew immediately of an oncoming vehicle." According to interviews with both Lee and Mason during the MBTA's investigation of the accident, Nna was acting as the flagperson for the crew, watching for trains as the other two worked on the switch. Lee indicated that none of the workers actually had flags with them because it was nighttime, and he was unsure whether any of them had an airhorn. The MBTA Safety Department Final Report found that both Nna and Lee were wearing orange high visibility safety vests, although it was unclear whether Mason was wearing a similar style vest.

[6] In total, there were five MBTA personnel assigned to fix signal problems in the area of Switch 83. The others were Signal Inspector Joseph Stover, who had called Dispatcher Mary Dacey to request right of way access for the work crew, and Engineer Peter Tabolt, who remained in the tower where he could control the switches while the work crew attempted to clear snow and ice.

C. The Accident

The train that struck Nna, Mason, and Lee was operated by motorman Daniel MacKay.[7] Although the train's radio was functioning properly on the night of the accident, MacKay said he did not hear any of the four radio announcements warning of the work crew's presence at Switch 83. According to MacKay, he was not actually on the train for three or four of the announcements because he was engaged in a series of "crew swaps" with other train crews during that time.[8] MacKay also suggested that one of the announcements may have occurred while his train was beneath an underpass where it did not receive radio reception.

The MBTA Safety Department Final Report suggested two other factors that may have caused MacKay to be "inattentive" on the night of the accident: (1) MacKay had a book with him in the train cab, which was found on the front windshield after the

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[7] MacKay had been a motorman on the Orange Line for ten years prior to the accident and had been found in violation of MBTA rules on twelve occasions during that time. Most of the violations concerned unauthorized absenteeism; one involved going through a double red signal leaving a station; another involved drinking coffee while operating a train; and another involved operating a train through an underpass without turning on the train's headlights. At his deposition, MacKay claimed there were mitigating circumstances for most of these violations. For example, he indicated that the headlights violation had occurred because he was passing another train and did not wish to "blind the other motorman" with his train's lights.

[8] MacKay described a "crew swap" as follows: "I'll get on someone's train and bring it a few stations, and then swap over to the other side going in the other direction, continuing to advance people to get them back on time."

accident; and (2) MacKay had been taking an anti-insomnia medication which had the potential to cause drowsiness. MacKay acknowledged that he had a book with him in the cab but insisted he was not reading it while operating the vehicle; rather, he said he kept the book in his coat sleeve and threw it onto the windshield while putting on his coat to leave the cab after the accident. MacKay also acknowledged that he had taken his sleep-aid medication the night before the accident, but said he did not take it again after waking up that morning.

MBTA regulations mandate that trains approaching areas with active work crews must reduce their speeds to ten miles per hour. Because MacKay did not hear the radio announcements warning of the work crew's presence at Switch 83, however, he maintained a speed of approximately forty miles per hour - the maximum speed for an MBTA rapid transit train - as he approached Wellington Station. MacKay was unable to recall whether or not his train's headlights were on at this time. Although it was not snowing, MacKay recalled that there was a lot of snow "swirling around" because another train had recently passed him in the opposite direction.

MacKay's first indication of the work crew's presence came after his train passed a bridge abutment on a long curved portion of the track approaching Wellington Station, when he spotted the corner of an orange safety vest. According to MacKay, "As soon

as I saw the corner of the safety vest, I threw the train into emergency, and I jumped out of my seat while throwing it into emergency, and immediately leaned on the horn." When the horn failed to sound, MacKay tried to push it a second time, but again it made no sound. Shortly thereafter, MacKay's train struck the three workers on the track.[9]

There is conflicting evidence regarding the positions and reactions of the work crew members as MacKay's train approached. According to MacKay:

> I saw three signal maintainers. They all had their backs to me. One was on his knees in the middle of the right-of-way. The other two were straddling a rail to his left and right. They never heard me coming until I was probably six or eight feet away. And they turned, looked at me, and I hit them.

The MBTA Safety Department Final Report concluded, based on a radio message by Lee prior to the accident and physical evidence at the scene, that the worker MacKay saw kneeling in the tracks was Nna. Lee, in his interview for the MBTA investigation, indicated that moments before the accident he was standing in the tracks chipping ice while Mason stood outside the gauge clearing snow. According to Lee, Nna was standing ten to fifteen feet behind the other two men, watching for trains. When Lee heard

[9] The parties dispute precisely when and where MacKay first spotted the work crew, as well as the exact sequence and timing of his actions prior to the collision. These issues are addressed in greater depth in Section III.C, *infra*, in connection with the element of causation.

Nna yell, he looked back to see Nna jump up and get struck by the train. Mason, in his interview, echoed Lee's account that Lee was in the middle of the tracks while Mason was off to the side. Mason, however, was unsure as to Nna's position at the time of the collision.

When emergency personnel arrived after the accident, Nna was pronounced dead at the scene and Mason and Lee were transported to the hospital. The MBTA Night Supervisor checked the train's horn at the accident's location to see whether it worked, and found that the horn made only an audible clicking sound. Photographs from the accident scene reveal that snow and ice had accumulated in the horn's bell. When the horn was later tested again at a maintenance building, it operated properly.

D. The MBTA's Purchase and Use of AA-2 Pneuphonic Horns

In August 1976, the MBTA contracted with Hawker Siddeley Canada, LTD to build and deliver 120 train cars, including the Orange Line train cars involved in the January 27, 2005 accident. The cars, which were delivered to the MBTA in 1980, were equipped with AA-2 Pneuphonic Horns designed and manufactured by WABCO Automotive, a subdivision of ASI. In accordance with the MBTA's specifications, the horns were attached in a position underneath the train cars. The horn involved in the accident at issue was the same horn installed with the train in 1980.

ASI, through WABCO, provided literature to the MBTA

regarding operation and maintenance of the component train parts manufactured by WABCO. Included in the "operation and maintenance information" for the AA-2 Pneuphonic Horn was a statement that read: "WARNING: THE HORN SHOULD BE POINTED IN THE DIRECTION SOUND IS REQUIRED AND MUST BE LOCATED IN AN AREA WHERE THERE WILL BE NO OBSTRUCTION IN FRONT OF IT. This is necessary in order to prevent interference with transmission of the horn alarm." According to the recommended maintenance procedures, each horn should have been removed from the vehicle and thoroughly cleaned, repaired, and tested every twenty-four months. There is evidence indicating the MBTA did not regularly perform this type of maintenance for the horns on its train cars.

In June 1976, shortly before the MBTA ordered its Orange Line train cars, another purchaser of train parts - General Electric Co. - requested that WABCO Automotive design and manufacture protective deflector cones for use on the AA-2 Pneuphonic Horn. Sometime thereafter, WABCO began manufacturing a variant of the AA-2 Pneuphonic Horn that included a "cone deflector" assembly. WABCO's Engineering Change & Release Notice regarding these horns noted that they had been designed "per requirements of the . . . G.E. Co. contract commitment," and indicated that the purpose of the "cone deflector" was "to prevent ice, sleet, snow and other small objects from entering the mouth of the horn bell."

None of the horns on the MBTA Orange Line cars purchased in 1976 were equipped with deflector cones or snow guards. In 1989, however, when the MBTA contracted for the construction of fifty-six new commuter rail coaches,[10] it ordered sets of air horns equipped with stainless steel snow guards to be installed on the top roof portion of the train cars. These horns were not designed or manufactured by WABCO or ASI.

In 2001, the MBTA hired LTK Engineering Services ("LTK") as consultants for the purchase of new rapid transit train cars for the MBTA's Blue Line Project. LTK provided design review, testing supervision and on-site inspections for the MBTA. In August 2003, Kenneth Hesser, a senior consultant for LTK acting on behalf of the MBTA, conducted an inspection of train equipment at a WABTEC facility; "WABTEC" was the new name given to the WABCO division after it was sold by ASI in March 1990. As part of the inspection, Hesser examined two AA-2 Pneuphonic Horns, which had substantially the same design as the subject horn in this case. Hesser noticed that unlike horns he had encountered on other trains - for example, the Amtrak Acela - the AA-2 Pneuphonic Horns were not equipped with any type of cover or deflector. When Hesser raised this issue with his superiors at LTK's Boston office, however, he was told that the MBTA did not

[10] The commuter rail for the MBTA travels further outside the city of Boston than rapid transit trains such as the Orange Line. The commuter trains are mainline "railroad operations," whereas the rapid transit trains consist of "light and heavy rail" cars.

use covers for the horns on its rapid transit lines.

In September 2003, LTK Project Manager Michael Tagaras sent a letter to Paul Forlizzi, Technical Project Manager at the MBTA, which included a summary of issues that arose at the meeting following Hesser's inspection. The meeting had been attended by Hesser, as a representative of LTK and the MTBA, as well as representatives of WABCO/WABTEC and Siemens - the manufacturer of the new Blue Line trains. The summary noted that Hesser had raised a question concerning protective covers for the AA-2 Pneuphonic Horns. It read: "LTK raised an issue concerning physical protection of the horn from debris, rain and snow but following consultation with Boston personnel concerning experience in this regard with current equipment, the issue was Closed."[11]

II. SUMMARY JUDGMENT

A. Standard of Review

"[S]ummary judgment's role is to pierce the boilerplate of the pleadings and assay the parties' proof in order to determine whether trial is actually required." *Wynne v. Tufts Univ. Sch.*

[11] According to ASI, Forlizzi testified at his deposition that the MBTA independently analyzed the issue of providing physical protection for the AA-2 Pneuphonic Horns from debris, rain, and snow, and concluded that the horn did not need any such protection. Forlizzi's deposition transcript was not, however, included among ASI's summary judgment submissions, and I will therefore not consider this assertion for purposes of this motion.

of Med., 976 F.2d 791, 794 (1st Cir. 1992). A court must grant summary judgment when it concludes based on "the pleadings, the discovery and disclosure materials on file, and any affidavits . . . that there is no genuine issue as to any material fact and that the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56©. A "genuine" factual issue is one that "may reasonably be resolved in favor of either party." *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 250 (1986). A fact is "material" when it "carries with it the potential to affect the outcome of the suit under the applicable law." *Nereida-Gonzalez v. Tirado-Delgado*, 990 F.2d 701, 703 (1st Cir. 1993).

In making its summary judgment inquiry, a court "must view the entire record in the light most hospitable to the party opposing summary judgment, indulging all reasonable inferences in that party's favor." *Griggs-Ryan v. Smith*, 904 F.2d 112, 115 (1st Cir. 1990). The party opposing a properly supported motion for summary judgment, however, "may not rest upon mere allegation or denials of his pleading, but must set forth specific facts showing that there is a genuine issue for trial." *Anderson*, 477 U.S. at 256. The judicial function in conducting this evaluation is not to weigh the evidence and determine the truth of the matter, but rather to determine whether the evidence presented is such that a jury "could reasonably find for either the plaintiff or the defendant." *Id.* at 249, 255.

B. Evidentiary Issues

Although neither party raised evidentiary objections - except as to experts - regarding the evidence relied upon by the opposing party in its summary judgment arguments, I will address several concerns I have with the admissibility of certain materials in the record. Both parties have relied on findings and statements contained in two MBTA reports concerning the January 27, 2005 accident: the MBTA Safety Department Final Report and the MBTA Police Department Fatality Report. Under the Federal Rules of Evidence, "reports . . . of public offices or agencies, setting forth . . . factual findings resulting from an investigation made pursuant to authority granted by law" are not inadmissible as hearsay, "unless the sources of information or other circumstances indicate lack of trustworthiness." Fed. R. Evid. 803(8)©. In *Beech Aircraft Corp. v. Rainey*, 488 U.S. 153 (1988), the Supreme Court held that opinions and conclusions contained in public reports are similarly exempt from the hearsay rule "[a]s long as the conclusion is based on a factual investigation and satisfies the Rule's trustworthiness requirement." *Id*. at 170. The MBTA is a public agency and its accident reports are therefore potentially eligible for admissibility under Rule 803(8)©.

I note, however, that neither party has attempted to establish that these reports were prepared "pursuant to authority

granted by law," as is required by Rule 803(8)©. I further note that the MBTA Safety Department Final Report expressly indicates that it is intended only "for the purpose of taking appropriate remedial action(s) (where necessary) in order to prevent future accidents and to enhance safety at the MBTA," and therefore "cannot be used in any way, positively or negatively, to establish legal liability (or lack thereof) in any court of law." For this reason, I do not accord weight to the fact - heavily emphasized by ASI - that the report concludes the accident was primarily the result of "human error" by motorman MacKay and the work crew.[12]

Furthermore, both parties rely at times on particular statements within these reports. The mere fact that third party statements appear in an otherwise admissible public report does not indicate the statements themselves are admissible. *See United Techs. Corp. v. Mazer*, 556 F.3d 1260, 1278 (11th Cir. 2009) ("[P]lacing otherwise inadmissible hearsay statements by third-parties into a government report does not make the statements admissible.") (internal quotation omitted). In order for this type of "hearsay within hearsay" to be admissible, each level of the hearsay must be subject to a recognized exception.

[12] The MBTA Safety Department Final Report does note, in passing, that the train's horn failed to sound properly as the train approached the work crew. It does not, however, analyze the significance of the horn's failure in any meaningful fashion.

See Fed. R. Evid. 805.

For example, Plaintiffs rely on Detective Amoroso's personal observation that the train horn made only an audible clicking sound when it was tested by the MBTA Night Supervisor after the accident. This statement appears in Detective Amoroso's report of his observations at the accident site, which in turn appears in the MBTA Police Department Fatality Report. Because both the Fatality Report and Detective Amoroso's report of his observations are arguably admissible under Fed. R. Evid. 803(8)(C), the statement regarding the horn may properly be considered at summary judgment. On the other hand, statements by MBTA train starter Jack Linso, which are relied upon by ASI, also appear in the Fatality Report but are not likewise admissible. Linso's statements regarding his safety concerns on the night of the accident - culminating with his call to Dispatcher Mary Dacey - are contained within Officer Sean Conway's report of the accident. Because Officer Conway merely recited Linso's statements, and their content was not based on Conway's own observations, the statements do not fall within any recognizable hearsay exception, absent evidence that Linso was under some legal duty to report. *See Parsons v. Honeywell, Inc.*, 929 F.2d 901, 907 (2d Cir. 1991) ("It is well established that entries in a police report which result from the officer's own observations and knowledge may be admitted but that statements made by third

persons under no business duty to report may not.") (internal quotation and emphasis omitted).

The most significant hearsay within hearsay in this case is the MBTA's investigative interviews with Plaintiffs Lee and Mason. Rather than submit affidavits from Lee and Mason, Plaintiffs have relied heavily on the content of those interviews, particularly Lee's account of Nna's position at the time of accident. The statements in those interviews, however, do not appear to be subject to any recognized hearsay exceptions.[13] Nevertheless, I have considered the substance of these statements for purposes of this motion on the assumption that Plaintiffs will be able to present the same evidence in admissible form at trial - e.g., as direct testimony by Lee and Mason. *See Eisenstadt v. Centel Corp.*, 113 F.3d 738, 742 (7th Cir. 1997) (noting that courts sometimes allow hearsay statements to be used in opposition to summary judgment "provided some showing is made (or it is obvious) that they can be replaced by proper evidence at trial."); *see also Pritchard v. Southern Co. Servs.*, 92 F.3d 1130, 1135 (11th Cir. 1996).

In connection with the discussion of the admissibility of evidence embedded in public reports, I think it important to

[13] If the interview statements by Lee and Mason were offered by ASI, they would be admissible as admissions by a party opponent under Fed. R. Evid. 801(d)(2). Because they are offered by Plaintiffs, however, they are inadmissible hearsay.

reiterate a cautionary observation. As I informed the parties at the hearing on ASI's Motion for Summary Judgment, I apply a demanding approach to evidence sought to be introduced through Fed. R. Evid. 803(8)(C). This approach is likely to require that totem pole hearsay, in particular, be based on separate grounds of admissibility and that more generally the trustworthiness requirement not be in any meaningful dispute. As an example, while Detective Amoroso's recorded observation about the MBTA Night Supervisor's testing of the horn is likely to be admissible, recorded statements by interested and implicated witnesses are not. Consequently, the parties should be alert to their need to present live witness testimony to assure the admissibility of evidence found in the reports they have relied on for purposes of summary judgment motion practice.

III. DISCUSSION

ASI moves for summary judgment on three grounds: first, that the MBTA was a "sophisticated user" of the subject horn; second, that the MBTA's series of extraordinarily negligent acts constituted an independent supervening cause of the accident; third, that Plaintiffs lack sufficient evidence of causation, primarily because their experts' testimony regarding that element is inadmissible under the *Daubert* standard. I will address each of these arguments in turn.

A. The "Sophisticated User" Defense

ASI incorporates two separate arguments into its claim that the MBTA was a "sophisticated user" of the AA-2 Pneuphonic Horn. First, ASI contends that the MBTA knew or reasonably should have known of the danger from the accumulation of snow and ice in the horn, and should therefore be deemed a "sophisticated user" of the horn under Massachusetts law.[14] Second, ASI argues that the MBTA's conscious and informed decision to forego installing protective covers on its train horns undermines Plaintiffs' defective design claims.

1. The Massachusetts "Sophisticated User" Doctrine

a. Legal Standard

In *Carrel v. National Cord & Braid Corp.*, 447 Mass. 431 (2006), the Supreme Judicial Court of Massachusetts expressly adopted what has been described as the "sophisticated user" doctrine. This doctrine "relieves a manufacturer of liability for failing to warn of a product's latent characteristics or dangers when the end user knows or reasonably should know of a product's dangers." *Id.* at 440-44 (internal quotation omitted). The *Carrel* court explained:

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[14] Plaintiffs argue that ASI should be foreclosed from basing the "sophisticated user" defense on this contention, because one of ASI's proposed trial experts concluded that the accumulation of snow and ice in the horn's bell was *not*, in fact, the cause of the horn's failure to sound. It is well-established, however, that parties are permitted to argue mutually exclusive alternative theories of defense. *See* Fed. R. Civ. P. 8(d)(3) ("A party may state as many separate claims or defenses as it has, regardless of consistency.").

> The sophisticated user defense is an application of the established principle that a manufacturer may avoid liability for failing to warn someone of a risk or hazard which he appreciated to the same extent as a warning would have provided. It applies where a warning will have little deterrent effect, and it allows the fact finder to determine that no such duty [to warn] was owed. It is a corollary of the "open and obvious" doctrine, a doctrine that has been long recognized in the Commonwealth as a defense in products liability cases grounded on a claim of failure to warn.

Id. at 441 (internal quotations and citations omitted). For the doctrine to be applicable, "[i]t is not necessary that the user know the exact characteristics of the product that make it dangerous. It is enough that the user knew or reasonably should have known of the particular danger to be guarded against, in which case an additional warning would have been superfluous." *Id.* at 445.[15]

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[15] Under Massachusetts law, the "sophisticated user" defense is a "separate, conceptually discrete" affirmative defense from the "bulk supplier" doctrine. *Hoffman v. Houghton Chem. Corp.*, 434 Mass. 624, 629 (2001). The "bulk supplier" doctrine allows a manufacturer-supplier of bulk products, in certain circumstances, to discharge its duty to warn end users of a product's hazards by reasonable reliance on an intermediary. *Id.* By contrast, the "sophisticated user" defense requires no intermediary relationship and need not involve bulk transactions. *Id.* Its application hinges on the sophistication of the end user. *Id.* In some other jurisdictions, the "sophisticated user" doctrine is used to refer collectively to both defenses. For example, two non-Massachusetts "sophisticated user" cases cited by ASI in fact involved an application of what Massachusetts courts would call the "bulk supplier" doctrine. *See Newson v. Monsanto Co.*, 869 F. Supp. 1255, 1260 (E.D. Mich. 1994); *Kalinowski v. E.I. Du Pont De Nemours & Co.*, 851 F. Supp. 149, 157-58 (E.D. Pa. 1994).

In *Carrel*, a camper injured in a zip-line accident brought suit against the manufacturer of a bungee cord for failing to warn about the inability of the cord to maintain a knot. *Id*. at 432-33. The Supreme Judicial Court held that it was appropriate for the trial judge to give a jury instruction on the "sophisticated user" defense with respect to the Boy Scouts of America, the organization responsible for running the camp where the accident occurred. At trial, evidence was presented that the Boy Scouts conducted programs with zip-lines across the country, had national safety standards regarding their use, and employed specialists to inspect and ensure compliance with those standards. *Id*. at 444. Furthermore, the specialist who inspected the zip-line course where the plaintiff was injured had specifically instructed the local Boy Scout supervisor not to use a particular type of knot when using the bungee cord. *Id*. at 444-45. The Supreme Judicial Court held that this evidence "was sufficient to support a jury finding that the Boy Scouts were users that knew or reasonably should have known of the product's dangers." *Id*. at 445.

The "sophisticated user" doctrine provides a defense to claims of both negligent failure to warn and failure to warn under breach of warranty. *Id*. at 441. ASI, citing *Genereux v. American Beryllia Corp.*, 518 F. Supp. 2d 306 (D. Mass. 2007), argues that the doctrine can also serve as a defense to defective

design claims. The court's analysis in *Genereux*, however, indicates that the doctrine was applied there only to relieve the defendant of a duty to warn the plaintiff about the dangers of airborne beryllium dust. *Id.* at 312-17. It is unclear whether the plaintiff in *Genereux* also brought negligence claims for defective design, and if so, on what basis they were dismissed. In general, under Massachusetts products liability law, "even if the obviousness of a danger negates any duty to warn of it, such obviousness does not necessarily negate the duty to remedy it." *Quinn v. Morganelli*, 73 Mass. App. Ct. 50, 55 (2008) (*citing Uloth v. City Tank Corp.*, 376 Mass. 874, 879-81 (1978)). I therefore decline to extend the "sophisticated user" doctrine to include defective design claims.

b. The MBTA as a "Sophisticated User"

ASI has presented some evidence that the MBTA "knew or should have known" of the dangers of snow and ice accumulating in their trains' horns. First, as a large-scale operator of outdoor commuter vehicles in Massachusetts, the MBTA was clearly aware of the cold and snowy conditions that accompany winters in New England. Second, the MBTA was aware that protective covers for train air horns were available for purchase; in fact, in 1989 the MBTA ordered horns with protective covers to be installed on fifty-six of its new commuter rail coaches. Third, in 2003, an LTK consultant hired by the MBTA in connection with its Blue Line

Project raised the question of whether the Blue Line trains should be equipped with "physical protection of the horn from debris, rain and snow." Fourth, motorman MacKay testified at his deposition that among MBTA personnel it was "generally known that snow clogs the horns" and claimed personally to have reported seven to ten incidents of snow clogging to MBTA dispatchers and discussed the issue with several other MBTA motormen.[16]

Nonetheless, I find there is a genuine issue of material fact as to whether the evidence sufficiently demonstrates that the MBTA "knew or should have known" of the danger posed by the accumulation of snow inside the horn's bell. Aside from MacKay's testimony, which comes with a certain inherent bias, there is no evidence to show that the MBTA was aware of the "particular danger" posed by the accumulation of snow - i.e., that it could prevent the horn from sounding altogether. The MBTA's purchase of protective snow covers for commuter rail cars may simply indicate a concern that external elements could physically damage the horns over time. The LTK consultant's concern with

[16] ASI also contends the MBTA should have known about the danger of snow accumulation from the warning in the horn's manual to position the horn "in an area where there will be no obstruction in front of it." This is not truly a "sophisticated user" argument, but rather an argument that ASI *fulfilled* its duty to warn MBTA of the relevant danger. I find that this warning is intended to prevent purchasers of the horn from placing it in a position where it would not be facing the open air, rather than as a warning about snow accumulation *inside* the bell of the horn. This warning does not appear, therefore, sufficient to discharge ASI's duty to warn the MBTA of the dangers at issue in this case.

protecting the Blue Line train horns from "debris, rain and snow" suggests a similar rationale; rain is unlikely to pose much danger of "clogging" the horn, but it may result in rust or general wear-and-tear. Furthermore, unlike the Boy Scout's specialist in *Carrel*, the consultant in this case did not specifically warn the MBTA that failure to use protective covers on the rapid transit train horns would be unsafe. The consultant merely posed the question to his own superiors, then later indicated the issue was closed.

For these reasons, I find that a reasonable jury could find that the "sophisticated user" doctrine does not apply in this case, and I will not grant ASI's summary judgment motion on the basis of that defense.

2. The MBTA's Decision to Forego Optional Safety Features

Plaintiffs' defective design claims are rooted in their contention that ASI should have made the "cone deflector" a standard part of the AA-2 Pneuphonic Horn assembly. Under Massachusetts law, a manufacturer will be liable "if its conscious design choices fail to anticipate the reasonably foreseeable risks of ordinary use." *Haglund v. Philip Morris, Inc.*, 446 Mass. 741, 747-48 (2006) (internal quotations omitted). ASI has argued that the *MBTA* made a "conscious decision" to use horns that were not equipped with protective covers, and that the MBTA's willingness to forego a known safety feature undermines

any defective design claim.[17]

ASI relies primarily on a decision of the New York Court of Appeals, which undertook to:

> distill some governing principles for cases where a plaintiff claims that a product without an optional safety feature is defectively designed because the equipment was not standard. The product is not defective where the evidence and reasonable inferences therefrom show that: (1) the buyer is thoroughly knowledgeable regarding the product and its use and is actually aware that the safety feature is available; (2) there exist normal circumstances of use in which the product is not unreasonably dangerous without the optional equipment; and (3) the buyer is in a position, given the range of uses of the product, to balance the benefits and the risks of not having the safety device in the specifically contemplated circumstances of *the buyer's* use of the product. In such a case, the buyer, not the manufacturer, is in the superior position to make the risk-utility assessment, and a well-considered decision by the buyer to dispense with the optional safety equipment will excuse the manufacturer from liability.

Scarangella v. Thomas Built Buses, Inc., 93 N.Y.2d 655, 661 (1999) (emphasis in orginal); *see also Austin v. Clark Equip. Co.*, 48 F.3d 833, 837 (4th Cir. 1995) ("[W]hen a customer exercises an option to purchase a product without a safety feature, it is axiomatic that the manufacturer should not be held

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[17] In its initial summary judgment brief, ASI framed this argument about the MBTA's choice to not use horn covers as establishing a "supervening cause" of the accident. In ASI's summary judgment reply brief, however, it is more clear that the argument is intended to show that the subject horn sold to the MBTA - without any protective cover - was not "defective" as a matter of law.

liable for damages which that safety feature may have prevented.") (internal quotation omitted).

ASI argues that all three of the factors identified by the court in *Scarangella* are present in this case. First, by 1989 - and potentially as early as 1976 - the MBTA was aware of the availability of protective covers for train horns. Second, train horns sold for use in environments with less severe weather conditions than New England may not always require protective covers. Third, ASI contends that the MBTA was in the best position to balance the benefits and risks of not using protective horn covers on its own rapid transit trains.

Granting all reasonable inferences in favor of Plaintiffs, however, I find that there is a genuine issue of fact as to whether ASI - and not the MBTA - was in the best position to determine whether protective horn covers were a necessary safety mechanism on the horns it sold. As discussed in connection with the Massachusetts version of the "sophisticated user" doctrine, Section III.A.1, *supra*, a reasonable jury could conclude that the MBTA was unaware of the particular danger posed by an uncovered horn - i.e., that the accumulation of snow in the horn's bell could cause the horn's failure to make any sound. As the designer and manufacturer of the product, ASI may have been better positioned to determine whether the risk of such failure implicated sufficiently grave consequences to justify installing

protective covers as a standard feature on the device. Under Massachusetts law, a variety of factors must be considered in evaluating the adequacy or defectiveness of a product's design: "the gravity of the danger posed by the challenged design, the likelihood that such danger would occur, the mechanical feasibility of a safer alternative design, the financial cost of an improved design, and the adverse consequences to the product and to the consumer that would result from an alternative design." *Colter v. Barber-Greene Co.*, 403 Mass. 50, 57 (1988). I find that it is for a jury to determine, by weighing these factors, whether the AA-2 Pneuphonic Horn at issue in this case was defectively designed.

B. Extraordinary Negligence as a Supervening Cause

ASI also moves for summary judgment on grounds that the MBTA's "extraordinary negligence" was an independent and supervening cause of the accident, thereby relieving ASI from liability for any negligence of its own.[18]

1. Legal Standard

Under Massachusetts law, a plaintiff must show not only that the defendant's negligent conduct was the cause-in-fact of the

[18] ASI does not expressly address whether this defense also implicates Plaintiffs' claims for breach of warranty. Without finally determining the issue, it appears to me likely it does because it may be applied to negate the causation showing Plaintiffs must make in the breach of warranty context as well. *See* note 21, *infra.*

plaintiff's injury, but also that the defendant's conduct was the "proximate" or "legal cause" of the injury. *Staelens v. Dobert*, 318 F.3d 77, 79 (1st Cir. 2003) (*citing Kent v. Commonwealth*, 437 Mass. 312, 320 (2002)). To demonstrate proximate cause, "a plaintiff must show that his or her injuries were within the reasonably foreseeable risks of harm created by the defendant's negligent conduct." *Id.* *See also* Restatement (Second) of Torts § 435(2) (1965) ("The actor's conduct may be held not to be a legal cause of harm to another where after the event and looking back from the harm to the actor's negligent conduct, it appears to the court highly extraordinary that it should have brought about the harm."). The question of whether a risk of harm was reasonably foreseeable is ordinarily a matter for the jury. *See Staelens*, 318 F.3d at 79.

The intervening negligent conduct of a third party generally does not relieve the original tortfeasor from liability where such conduct was reasonably foreseeable. *Id.* In some cases, however, a third party's act of extraordinary negligence leading to unforeseeable harms will break the chain of causation and cut off the defendant's liability. *See Or v. Edwards*, 62 Mass. App. Ct. 475, 486 (2004) ("[T]he defendant is responsible for the harms caused in substantial degree by the negligent act, except any so highly extraordinary that the defendant could not ex ante have reasonably foreseen that the negligent act would bring them

about."); *see also Exxon Co., U.S.A. v. Sofec, Inc.*, 517 U.S. 830, 833-35, 839-40 (holding that a third party's "extraordinary negligence" was the "sole proximate cause" of the injury, thereby "cut[ting] off" the defendant's liability). In *Staelens*, for example, a truck driver sued a motorist who had collided with his truck. 318 F.3d at 78. The plaintiff truck driver was not harmed in the collision, but later injured his knee by tripping over equipment negligently left lying around by a state employee investigating the accident. *Id.* The court held that "no jury could conclude that it was reasonably foreseeable that, three to five hours after the collision, [the plaintiff] would trip over a piece of equipment brought to the scene sometime after the accident." *Id.* at 79. The *Staelens* court emphasized that the defendant, by negligently causing the collision, "did not become an insurer of [the plaintiff's] safety against all conceivable harms," and noted that a contrary finding would "substantially extend the scope of reasonable foreseeability as set forth in Massachusetts case law and stretch the concept beyond reason." *Id.*

2. The MBTA's Negligence

According to ASI, MBTA personnel engaged in a "cascading series of egregious rules violations" that caused the accident on January 27, 2005. ASI argues that these acts cumulatively constituted "extraordinary" negligence, and therefore represented

a supervening cause that cut off ASI's own liability for the accident. I find, however, that this was not a case where a third party's extraordinary negligence could be said as a matter of law to have resulted in unforeseeable harms.[19]

First, I note that the precise nature of the MBTA's alleged negligence is subject to a host of factual disputes. The circumstances that led to the miscommunication between Dispatcher Mary Dacey and her supervisor Deon Stubbs, for example, are not entirely clear. There is conflicting evidence as to whether Nna was acting as the work crew's designated flagperson or whether the crew had no designated flagperson at the time the train approached. There are also factual disputes regarding the actions of motorman MacKay. Although ASI has repeatedly emphasized the evidence that MacKay was taking anti-insomnia medication and had a book in the train cab - going so far as to refer to him as a "drugged, distracted motorman" - MacKay has disputed that he used the medication on the evening of the accident or that he ever read his book while operating the train. MacKay also claimed that his participation in a series of "crew

[19] ASI's summary judgment arguments are directed entirely to the allegedly "extraordinary" nature of the MBTA's negligence. At least one Massachusetts case cited by ASI, however, focuses primarily on the "extraordinary" nature of the harms caused by the intervening negligence. *See Or v. Edwards,* 62 Mass. App. Ct. 475, 466 (2004). This distinction does not alter my analysis in this case, because I cannot find as a matter of law that either the MBTA's negligence or the resulting harms were "extraordinary."

swaps" shortly before the accident provided a reasonable explanation for his failure to hear Dacey's announcements warning of the work crew's presence at Switch 83. MacKay has acknowledged uncertainty as to whether his train's headlights were on. Even so, granting all reasonable inferences in favor of Plaintiffs, this sequence of events appears less like a series of "extraordinary" negligent acts and more like a tragic confluence of basic oversights and miscommunications.[20]

Furthermore, the very nature of a warning device such as the subject horn indicates that it is foreseeable for circumstances to arise where other precautionary measures have failed. As the Supreme Judicial Court of Massachusetts observed in *Uloth v. City Tank Corp.*, "[o]ne of the primary purposes of safety devices is to guard against such foreseeable situations" as "instinctual reactions, momentary inadvertence, or forgetfulness on the part

[20] ASI also includes among the alleged "extraordinary" acts of negligence: (1) the MBTA's failure to use a cover on the AA-2 Pneuphonic Horn and, (2) the MBTA's failure to conduct regular maintenance. The former is simply a reformulation of ASI's "sophisticated user" defense, addressed in Section III.A, *supra*. The latter appears to have had no bearing on the accident. The literature accompanying the horn recommended performing thorough maintenance once every 24 months. According to the MBTA Safety Department Final Report, however, the subject horn in this case was able to operate properly again shortly after it was moved inside a heated maintenance building and continued to function properly thereafter. This suggests the horn's malfunction was not the result of a problem accumulating over several years, which could have been prevented with biannual maintenance, but was rather a short-term problem, potentially caused by snowy conditions and frigid temperatures on the night of the accident.

of a worker." 376 Mass. at 880. Even if the actions of the MBTA personnel on the night of the accident rose above the level of "inadvertence" or "forgetfulness" to the level of negligence, I find that the negligence has not been shown to be so "extraordinary" as to be unforeseeable as a matter of law by the manufacturer of a safety warning device.

Nor am I convinced by ASI's argument that allowing ASI to be held liable under these circumstances would risk turning manufacturers of warning equipment into "insurers against the negligence of all purchasers of their equipment." Where the harm resulting from the failure of warning equipment is truly "extraordinary" or unforeseeable, the manufacturer will be cut off from liability. For example, in a case more analogous to *Staelens*, if one of the plaintiffs had been injured not by the train collision but by the unrelated negligence of an MBTA investigator hours later, there is no question that ASI would not be liable as an "insurer" against the harm, even if the subject horn's failure had caused the initial accident. In this case, on the other hand, at the moment motorman MacKay attempted to sound the subject horn, the device was being called upon to serve precisely the function for which it was designed – i.e., as a last warning measure for people on the track who had otherwise failed to notice the train's approach. The harm resulting from the accident could be held a foreseeable consequence of the

horn's failure, and I will consequently deny ASI's summary judgment motion on the of basis of the MBTA's intervening "extraordinary" negligence.

C. Proof of Causation

Lastly, ASI moves for summary judgment on grounds that Plaintiffs have failed to provide sufficient evidence as to the element of causation.[21] ASI argues there is no admissible evidence to show that the MBTA workers would have had sufficient time to escape a collision with the oncoming train even if the subject horn had sounded properly. Evaluating this contention requires a two-step inquiry: first, I must determine whether the proposed testimony of Plaintiffs' experts regarding causation is admissible under the *Daubert* standard; second, if any of the expert testimony is excluded, I must determine whether there remains sufficient evidence in the record to say Plaintiffs have demonstrated a genuine issue of material fact as to causation.

1. Admissibility of Plaintiffs' Expert Testimony

a. Legal Standard

Rule 702 of the Federal Rules of Evidence "assigns to the trial judge the responsibility for ensuring that an expert's

[21] Causation is an essential element for all of Plaintiffs' asserted claims: negligence, gross negligence, and breach of warranty. *See, e.g., Lally v. Volkswagen Aktiengesellschaft*, 45 Mass. App. Ct. 317, 326 n.14 (1998) (noting that negligence and breach of warranty are "both cases of action [that] include causation as an essential element").

testimony as to scientific, technical, or other specialized knowledge 'both rests on a reliable foundation and is relevant to the task at hand.'" *Hochen v. Bobst Group, Inc.*, 290 F.3d 446, 452 (1st Cir. 2002) (*quoting Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 597 (1993)).[22] Before admitting expert testimony, the court must determine that: "(1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case." Fed. R. Evid. 702. The Supreme Court in *Daubert* identified four factors to guide district courts in their gatekeeping function of evaluating the reliability of an expert's proposed testimony: "the verifiability of the expert's theory or technique, the error rate inherent therein, whether the theory or technique has been published and/or subjected to peer review, and its level of acceptance within the scientific community." *Ruiz-Troche v. Pepsi Cola of P.R. Bottling Co.*, 161 F.3d 77, 81 (1st Cir. 1998) (*citing Daubert*, 509 U.S. at 593-95). These factors are aimed at ensuring "that an expert, whether basing testimony

[22] Plaintiffs' citation to the Massachusetts standards for the admission of expert testimony is, as a matter of law, misplaced. *See McDowell v. Brown*, 392 F.3d 1283, 1294-95 (11th Cir. 2004) ("[T]he admissibility of expert testimony is a matter of federal, rather than state procedure."). In any event, as a matter of practice, the Massachusetts standards mirror the federal standards. *See Commonwealth v. Lanigan*, 419 Mass. 15 (1994).

upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 152 (1999).

Although the *Daubert* decision focused primarily on an expert's methodology, trial judges may also "evaluate the data offered to support an expert's bottom-line opinions to determine if that data provides adequate support to mark the expert's testimony as reliable." *Ruiz-Troche*, 161 F.3d at 81. As the Supreme Court explained in *General Electric Co. v. Joiner*, 522 U.S. 136 (1997):

> [N]othing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.

Id. at 146. On the other hand, "*Daubert* does not require that a party who proffers expert testimony carry the burden of proving to the judge that the expert's assessment of the situation is correct." *Ruiz-Troche*, 161 F.3d at 85. Rather, "[a]s long as an expert's scientific testimony rests upon good grounds, based on what is known, it should be tested by the adversary process - competing expert testimony and active cross-examination - rather than excluded from jurors' scrutiny for fear that they will not grasp its complexities or satisfactorily weigh its inadequacies."

Id. (internal quotation and citation omitted). The trial court should at all times keep sight of the "ultimate purpose" of the *Daubert* inquiry: "to determine whether the testimony of the expert would be helpful to the jury in resolving a fact in issue." *Hochen*, 290 F.3d at 452 (internal quotation omitted).

b. Thomas E. Johnson's Testimony

Plaintiffs' expert Thomas E. Johnson is a licensed professional engineer and certified accident reconstructionist. He has worked in the railroad industry for over twenty-five years, first as a metallurgical engineer and then as an engineering manager. Since 1997, he has run his own engineering consultant practice, primarily serving the railroad industry. Johnson's conclusions in connection with this case fall into two categories: (1) accident reconstruction, and (2) horn failure analysis. ASI's objections are directed only to the first category.

Johnson's accident reconstruction analysis provides in pertinent part:

> [T]he speed of the subject train before brakes were applied was determined by MBTA investigators to be 38 miles per hour (mph) . . . . A speed of 38 mph equates to 55.73 feet per second (fps). Motorman Daniel MacKay estimates that he attempted to sound the horn when his train was 60-70 yards from the workers. This is 180-210 feet. Ignoring the additional time afforded by the slowing of the train due to braking before the point of impact, the train would have reached the workers in 3.2-3.8 seconds.

> If the horn had sounded as intended, the sound would have reached the workers in .2 seconds, leaving the men 3-3.6 seconds to react and get out of the path of the train. The reasonable reaction time in these circumstances for a "reasonably expected event" would be no more than 1-1.5 seconds,[23] leaving 1.5-2.6 seconds for the men to move a distance of no more than one half the width of the Orange Line car. Car specifications show a total width of the car to be 9.25 feet. Half of this is a distance of 4.625 feet.
>
> It is entirely reasonable to expect that these three experienced MBTA employees would have immediately understood the urgency to move away from the path of the train upon hearing the train horn. Given the maximum distance of 4.625 feet to completely avoid contact with the train, it is much more likely than not that these men would have been able to reach a point of safety in the time available, using the most conservative estimates of that amount of time.

With respect to this analysis, ASI contends that Johnson: is not qualified to offer an expert conclusion rooted in human factors analysis; did not employ any generally accepted scientific methodology; did not subject his conclusion to empirical testing; and offered a "wholly conclusory" conclusion lacking any evidentiary basis.

In addressing ASI's objections, it is necessary to

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[23] "Reaction time" refers to the amount of time it takes a person to *begin* reacting to an event after first perceiving it. In a supplemental affidavit, Johnson identified the source of this figure for a "reasonable reaction time" to be a work of scientific literature on which he says it is "common practice" for accident reconstructionists to rely. *See* Marc Green "*How Long Does It Take to Stop?" Methodological Analysis of Driver Perception - Brake Times*, 2 TRANSPORTATION HUMAN FACTORS, September 2000, at 195-216.

distinguish between two aspects of Johnson's analysis that ASI conflates throughout its summary judgment arguments: first, Johnson's calculation that the MBTA workers would have had 1.5-2.6 seconds to move away from the train after hearing the horn and reacting (i.e., the *amount* of time to move away); second, Johnson's conclusion that "it is much more likely than not" that 1.5-2.6 seconds was sufficient for the workers to reach a point of safety (i.e., the sufficiency of the time to move away). I find that the first conclusion is admissible but the second conclusion is not.

I. The amount of time to move away

Johnson's calculation of the *amount* of time for the workers to move away from the oncoming train is based primarily on principles of physics relating to speed, time and distance. These types of calculations fall easily within Johnson's qualifications as a licensed engineer and a certified accident reconstructionist. ASI's objections to this aspect of Johnson's analysis are based on Johnson's reliance on a standard reaction time and his failure to account for the minimum time it must have taken MacKay to jump up and press the horn button after first spotting the work crew.

Johnson's reliance on a standard reaction time drawn from scientific literature does not render his conclusion inadmissible. ASI cites no authority for its sweeping argument that Johnson was required to "reproduce the conditions of the

accident with test subjects of a similar age and condition in similar weather" in order to offer an admissible opinion regarding the circumstances of the accident. Such a standard would set the bar for admitting expert testimony unnecessarily high. The Supreme Court has indicated that the appropriate standard is whether the expert "employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." *Kumho*, 526 U.S. at 152. Johnson asserts that "[i]t is common practice for accident reconstructionists simply to use a standard reaction time number, such as 1.5 seconds, when analyzing a case," and ASI has presented no evidence to the contrary. In fact, ASI's own expert, Dr. Robert Sugarman, also uses reaction times drawn from scientific literature in his analysis of the accident.[24]

There are, of course, limitations inherent to using a standard value to measure actions occurring in a particular set of circumstances. It is certainly possible, as ASI argues, that the actual reaction time of these workers was slower than the standard reaction time for a "reasonably expected event." The

[24] It bears noting that the standard reaction time used in Sugarman's calculations is .5 seconds, which is *shorter* than the figure used by Johnson (1-1.5 seconds). In other words, if Johnson had used Sugarman's figure, he would have concluded that the workers had a longer time to move out of the way. Sugarman's conclusion that the workers could not have escaped the collision is based primarily on the additional time he accounts for MacKay to stand up and hit the horn button and for Nna to stand up and move off the tracks. It is *not* based on his use of a longer or more precise value for reaction time.

surprising speed of the train's approach, the snowy and frigid weather conditions, or simple variations among different individuals may have pushed the work crew's reaction times higher than the average. These factors are all appropriate topics for competing expert testimony or for cross-examination, and there is no reason to believe that jurors would be unable to fully account for them when weighing the significance of Johnson's testimony. In any event, I cannot conclude that Johnson's reliance on a standard reaction time demonstrates that his conclusion would not be "helpful to the jury in resolving a fact in issue" in this case. *Hochen*, 290 F.3d at 452.

Johnson's failure to account for the time it must have taken MacKay to press the horn button after spotting the work crew is also not adequate grounds for excluding his conclusion. There is a genuine issue of material fact as to the timing and sequence of events immediately preceding the collision. According to ASI, MacKay first saw the work crew when he was 60-70 yards away, meaning that by the time he hit the emergency brake, jumped out of his seat, and leaned against the horn, he would have been much closer to them. The MBTA Final Report appears to adopt this interpretation of events, concluding that MacKay "did not *observe* any of the workers on the right-of-way until a point (approximately 60 yards) where it was too late for him to stop

the train."[25] (emphasis added). Elsewhere, however, the same report describes MacKay's account of the accident as: "[MacKay] jumped up, threw the train into emergency and leaned on the horn. Unfortunately, the horn did not work. *At that point*, he stated he was 60-70 yards from the crew." (emphasis added). At his deposition, MacKay testified: "[O]nce I cleared the bridge abutment, that's when I could see the corner of a safety vest." Johnson has explained:

> My interpretation of Mr. MacKay's testimony is that somewhere between the Bridge Abutment and 60-70 yards from the switch, motorman MacKay became aware of the workers and hit the horn. At 60-70 yards the horn had been sounded,[26] brakes engaged, and he was fully aware of the emergency in my interpretation.

Johnson supports this interpretation with his finding that Switch 83 would have first been visible to MacKay on the night of the accident at a distance of 300 feet (or 100 yards), shortly after the bridge abutment. The resolution of these factual disputes concerning timing and distance is clearly a matter for the finder-of-fact, and is not an issue to be decided in the course of a *Daubert* inquiry so long as the evidence could reasonably support the assumptions on which the expert's opinion is based. For these reasons, I find that Johnson's opinion as to the amount

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[25] This premise also underlies the conclusion of ASI's expert witness, Dr. Sugarman. *See* note 24, *supra*.

[26] Johnson presumably meant to say that MacKay had *attempted* to sound the horn by the time the train was 60-70 yards away; it is undisputed that the horn failed to sound.

of time available for the workers to move away from the train is admissible.

ii. The sufficiency of the time to move away

Johnson's conclusion regarding the sufficiency of the time for the workers to escape the oncoming train, on the other hand, draws him into the field of human factors analysis. There is no indication from Johnson's qualifications that he has any expertise in determining how long it takes for an individual to make a certain series of movements. Nor is there any indication form Johnson's report that he ever even *attempted* to make such a calculation in this case.

Rather, having determined that the work crew would have had approximately 1.5-2.6 seconds to move away, Johnson simply leaps to the conclusory assertion that "[g]iven the maximum distance of 4.625 feet to completely avoid contact with the train, it is much more likely than not that these men would have been able to reach a point of safety in the time available." This conclusion appears to be based on nothing other than Johnson's general observation that "[i]t is entirely reasonable to expect that these three experienced MBTA employees would have immediately understood the urgency to move away from the path of the train upon hearing the train horn." In the absence of any identifiable methodology, beyond Johnson's general impression of how quickly experienced railroad employees can move, his conclusion as to the sufficiency of the time to move away is not admissible as an

expert opinion. *See United States v. Fosher*, 590 F.2d 381, 383 (1st Cir. 1979) ("[T]o be a proper subject of expert testimony, proof offered to add to [the jurors'] knowledge must present them with a system of analysis that the court, in its discretion, can find reasonably likely to add to common understanding of the particular issue before the jury.").[27]

c. Dr. John Mroszczyk's Testimony

Plaintiffs' second expert, Dr. John Mroszczyk, is a registered professional engineer with a Ph.D. in applied mathematics. The bulk of Mroszczyk's report is directed to his conclusion that if the subject horn had properly sounded from 60-70 yards away from the work crew, it would have provided an audible warning to the men on the track. ASI does not seek to exclude this aspect of Mroszczyk's report. Rather, ASI objects to Mroszczyk's final paragraph, in which he concludes, with no apparent analysis, that "[h]ad the horn operated properly when activated by motorman MacKay approximately 60 to 70 yards from the workers, there was more than sufficient time for the workers to clear the track and the accident would have been prevented."

I find that this opinion must be excluded. First, there is

[27] I note that if Johnson's opinion regarding the sufficiency of the time to move away *were* otherwise admissible, I would reject ASI's argument that Johnson failed to properly account for the amount of time it would have taken Nna to stand up from a kneeling position. Just as with the issues concerning the timing and sequence of MacKay's actions preceding the collision, there is a genuine issue of material fact as to whether Nna was kneeling or standing as the train approached the work crew.

no indication Mroszczyk is qualified to conduct the sort of human factors analysis that would allow him to compute the minimum time required for individuals to move a certain distance. Second, there is no indication in his report that Mroszczyk even attempted to make any such a determination in this case. This assertion appears to be nothing more than a bare, unsupported conclusion, which is not saved from inadmissibility by Plaintiffs' contention that it was "based on [Mroszczyk's] review and understanding of the opinions of Mr. Johnson." As discussed above, Johnson's conclusion as to the sufficiency of time for the work crew to reach a point of safety was itself inadmissible for similar reasons.

2. Sufficient Evidence of Causation

Despite the exclusion of Johnson's and Mroszczyk's opinions as to the sufficiency of time for the work crew to move away from the oncoming train, I find that Plaintiffs have raised a genuine issue of material fact as to causation. Unlike the cases cited by ASI where summary judgment was granted based on the exclusion of expert testimony regarding causation, this case does not hinge on judgments requiring professional expertise or scientific principles so complex that jurors could not be expected to draw their own conclusions from the available evidence. *Cf. Beaudette v. Louisville Ladder, Inc.*, 462 F.3d 22, 27 (1st Cir. 2006) (affirming the grant of summary judgment where without expert

testimony "the average juror will not have knowledge as to the use of a ladder jack, the construction of scaffolding out of ladders, and the combination of factors that would make such a situation safe or unsafe"); *Sutera v. Perrier Group of Am., Inc.*, 986 F. Supp. 655, 668 (D. Mass. 1997) (granting summary judgment where plaintiff could offer no reliable scientific evidence showing a causal link between the benzene in his bottled water and his leukemia).

Although human factors analysis is a complex scientific subject that is a proper topic for expert testimony, it is also a field for which laypersons can be expected to have some basic level of understanding. To use an obvious example, it would not require expert testimony for a jury reasonably to conclude that one minute was a sufficient amount of time for an MBTA worker to move approximately four and a half feet. It is, of course, a more difficult question whether 1.5-2.6 seconds would be sufficient time for a worker to move that distance, but I cannot conclude as a matter of law that it is beyond the knowledge and ability of a lay juror to make such a determination without the aid of expert testimony.

Furthermore, a reasonable jury relying on the figures and calculations provided by Dr. Robert Sugarman - ASI's own human factors analysis expert - could conclude that the work crew would have had sufficient time to escape the collision. Sugarman's conclusion that the time was insufficient was premised on two

disputed premises: (1) that MacKay first saw the work crew when he was 60-70 yards away and did not attempt to sound the horn until after several moments later; and (2) that Nna was kneeling with his back to the train as the train approached. Granting all reasonable inferences in favor of Plaintiffs, a juror could instead find: (1) that MacKay had already attempted to sound the horn when he was 60-70 yards away; and (2) that Nna was standing facing the train as the train approached. Under these premises, using the reaction times and movement times provided by Sugarman,[28] a reasonable juror could conclude that there was sufficient time for the work crew to move away from the oncoming train to avoid the accident.

For these reasons, I will deny ASI's motion for summary judgment on the issue of causation.

IV. CONCLUSION

For the reasons set forth more fully above, I grant in part and deny in part Defendant's Motion to Exclude Expert Testimony [#74] and I DENY Defendant's Motion for Summary Judgment [#70].

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[28] Sugarman posits that it would have taken a minimum of 7.24 seconds from the moment MacKay first saw the orange vest to the moment Nna could reach a point of safety. Removing the time for MacKay to hit the brake, jump up and sound the horn (2.02 seconds), as well as the time for Nna to arise from a kneeling position (2.76 seconds) the amount of time for Nna to reach a point of safety after McKay pressed the horn button equals 2.46 seconds. Even if the train had not slowed at all, and instead continued at 38 mph (55.73 feet per second), it would have traveled only 137 feet, or 46 yards, by the time Nna could have heard the horn and stepped off the tracks to avoid the collision.

The Plaintiffs are directed to file a Fourth Amended Complaint on or before May 15, 2009.

/s/ Douglas P. Woodlock
DOUGLAS P. WOODLOCK
UNITED STATES DISTRICT JUDGE